

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
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in its capacity as elected Office

Date of mailing (day/month/year) 17 November 2000 (17.11.00)	
International application No. PCT/GB00/01290	Applicant's or agent's file reference REP06103WO
International filing date (day/month/year) 06 April 2000 (06.04.00)	Priority date (day/month/year) 06 April 1999 (06.04.99)
Applicant DENSHAM, Daniel, Henry	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 26 October 2000 (26.10.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740 14 35

Authorized officer

Zakaria EL KHODARY

Telephone No.: (41-22) 338 83 38

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
12 October 2000 (12.10.2000)

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(10) International Publication Number
WO 00/60114 A3(51) International Patent Classification⁷: C12Q 1/68

(21) International Application Number: PCT/GB00/01290

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(71) Applicant (for all designated States except US): MEDICAL BIOSYSTEMS LTD. [GB/GB]; The Old Mill, Beaston Cross, Broadhempston, Nr. Totnes, Devon TQ9 6BX (GB).

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

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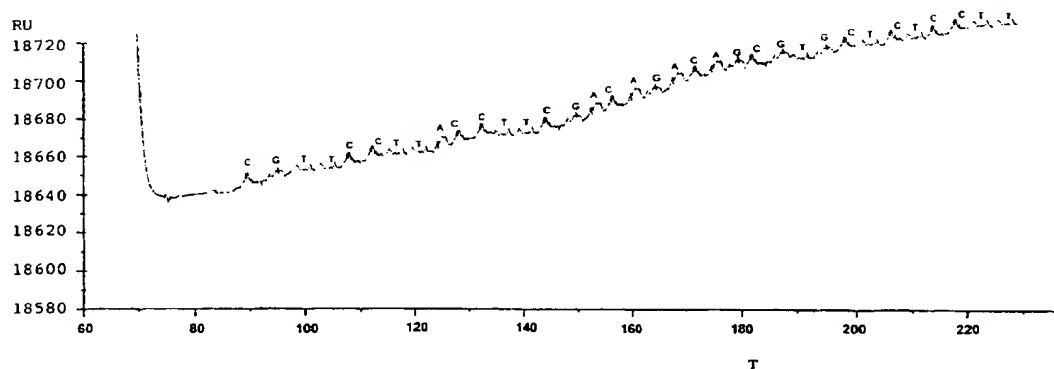
Published:

— with international search report

(88) Date of publication of the international search report:
31 January 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POLYNUCLEOTIDE SEQUENCING USING A HELICASE



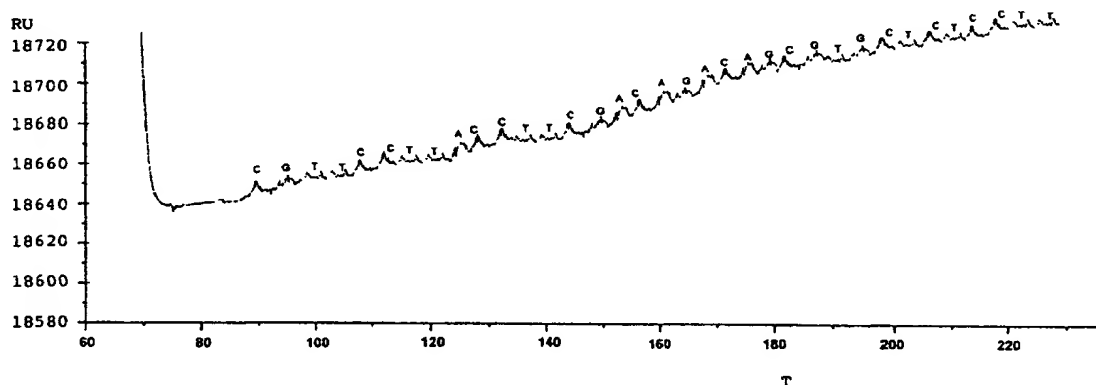
(57) Abstract: A method for sequencing a polynucleotide, comprises the steps of: (i) reacting a target polynucleotide with a helicase/primase enzyme (which may be immobilised), under conditions suitable for enzyme activity; and (ii) detecting the interaction between the enzyme and a nucleotide on the target, by measuring radiation.

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(51) International Patent Classification ⁷ : C12Q 1/68	A2	(11) International Publication Number: WO 00/60114 (43) International Publication Date: 12 October 2000 (12.10.00)
(21) International Application Number: PCT/GB00/01290 (22) International Filing Date: 6 April 2000 (06.04.00) (30) Priority Data: 9907812.3 6 April 1999 (06.04.99) GB (71) Applicant (for all designated States except US): MEDICAL BIOSYSTEMS LTD. [GB/GB]; The Old Mill, Beaston Cross, Broadhempston, Nr. Totnes, Devon TQ9 6BX (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): DENSHAM, Daniel, Henry [GB/GB]; The Old Mill, Beaston Cross, Broadhempston, Nr. Totnes, Devon TQ9 6BX (GB). (74) Agent: GILL JENNINGS & EVERY; Broadgate House, 7 Eldon Street, London EC2M 7LH (GB).		(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>

(54) Title: POLYNUCLEOTIDE SEQUENCING USING A HELICASE**(57) Abstract**

A method for sequencing a polynucleotide, comprises the steps of: (i) reacting a target polynucleotide with a helicase/primase enzyme (which may be immobilised), under conditions suitable for enzyme activity; and (ii) detecting the interaction between the enzyme and a nucleotide on the target, by measuring radiation.

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EE	Estonia						

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference REP06103W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 01290	International filing date (day/month/year) 06/04/2000	(Earliest) Priority Date (day/month/year) 06/04/1999
Applicant MEDICAL BIOSYSTEMS LTD		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/01290

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

BIOSIS, EPO-Internal, WPI Data, PAJ, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SUTTON MARK D ET AL: "Escherichia coli DnaA protein: The N-terminal domain and loading of DnaB helicase at the E. coli chromosomal origin." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 273, no. 51, 18 December 1998 (1998-12-18), pages 34255-34262, XP002171544 ISSN: 0021-9258 page 34256, left-hand column ---	6
A	WO 99 05315 A (DENSHAM DANIEL HENRY ;MEDICAL BIOSYSTEMS LTD (GB)) 4 February 1999 (1999-02-04) the whole document --- -/--	1-6

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
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- *O* document referring to an oral disclosure, use, exhibition or other means
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- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

10 July 2001

Date of mailing of the international search report

20/07/2001

Name and mailing address of the ISA

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Reuter, U

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/01290

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 95 06138 A (UNIV CALIFORNIA) 2 March 1995 (1995-03-02) page 10, last paragraph -page 14; figures ---	1-6
A	WO 90 13666 A (AMERSHAM INT PLC) 15 November 1990 (1990-11-15) the whole document ---	1-6
A	US 5 747 247 A (EGGLESTON ANGELA K ET AL) 5 May 1998 (1998-05-05) the whole document ---	1-6
E	WO 01 25480 A (DENSAM DANIEL HENRY ;MEDICAL BIOSYSTEMS LTD (GB)) 12 April 2001 (2001-04-12) the whole document -----	1-6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/01290

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9905315	A	04-02-1999	AU 8455998 A BR 9812270 A CN 1265158 T EP 1017848 A	16-02-1999 18-07-2000 30-08-2000 12-07-2000
WO 9506138	A	02-03-1995	US 5620854 A	15-04-1997
WO 9013666	A	15-11-1990	CA 2045505 A EP 0471732 A JP 4505251 T	12-11-1990 26-02-1992 17-09-1992
US 5747247	A	05-05-1998	NONE	
WO 0125480	A	12-04-2001	NONE	